

MAY 7 1975

Dear Saul:

We have been giving a good deal of thought and attention to the issues raised by your proposal to augment your 10 at Rutgers. This response has been discussed with Ed Feigenbaum and Elliot Levinthal as well as with Tom; but I felt we should not carry it beyond our own two groups without further consultation with you.

Briefly, there are two main reasons why I do not think that we should recommend the use of the SUMEX-AIM grant as a vehicle for this purpose.

1) I believe that this pattern of extension of the SUMEX-AIM system is a significant departure from the charter that was authorized by the RR Council -- involving as it does not only a significant capital investment, but an INEVITABLE commitment for further operational support in the future

and 2) serious technical and especially MANAGERIAL problems of supporting two distant systems in a way that would really accomplish the backup goals that are the rationale in the present proposal.

In the light of our extensive experience with efforts to sustain day to day compatibility with IMSSS and with other network TENEXes, our staff is unanimous that only an authoritative single management of the two facilities would make it actually work to those goals. I am sure that you would be as loathe to delegate such responsibility as we would be to assume it; at its best, and even with "full authority", it would be a managerial nightmare.

We do have an alternative proposal that would answer the technical issues of 2). And as for 1), we would all offer you the strongest support in defense of a project proposal from you before the appropriate study section and Council. And we can transmit as much more detail as you wish about the technical problems -- the simplest would be for you to talk to Tom and Rainer.

The alternative option that we have in mind would be an augmentation of your system with the aim of giving the SUMEX-AIM community access to TOPS-10 as a complement to TENEX.

This would greatly benefit SUMEX-AIM users who are having difficulties in adapting their programs to TENEX. We believe many of these problems will eventually be solved, but some perhaps only at unreasonable expense compared to just having time available on a TOPS-10 machine. Also the conversions would be very much facilitated if we could examine the running code as it was IN FACT being executed under TOPS-10.

In our opinion, this widening of options to SUMEX-AIM users would be of greater benefit as a return for augmenting your system, than would be the exact duplication of SUMEX-tenex. With efficient communication between our two systems, there may even be occasions when users would run program segments alternately under TENEX and under TOPS-10 in accordance with the availability of the appropriate software. In fact there are a number of very interesting experiments on inter-system coordination and cooperation that would be advanced by this complementarity, and will be of utmost importance in the future development of computer networking and the concept of division of labor among functionally specialized centers. *Financial and economic purposes in SUMEX-AIM development*
fractionation of capital investment -- and commitment to the future costs that will follow with it -- are not the most

cost effective use of available funds. [For example, in a year or two, when we are more heavily loaded, the upgrading of the KI to a KL processor can probably give us a 2 or 3X increase in thruput at relatively little cost. We are at a point on the investment-yield curve (taking staffing also into account) where it makes little sense to distribute the investment into fragments.

We can sympathize that one motive for local augmentation may be the still imperfect state of communications across the country compared to the local phone call. We think this is subject to continued improvement and certainly will support any reasonable steps to make working on the system more comfortable for you and your colleagues.

Josh
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